A systematic review of child-focused outcomes and assessments of arts therapies delivered in primary mainstream schools

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Abstract

Introduction: Arts therapies have been widely used at schools for over half a century in an effort to alleviate and prevent children's difficulties. In contrast to talking therapies, arts therapies aim to facilitate personal change and growth through the use of arts media. Existing systematic reviews are limited to one of the arts therapies (namely either art, music, drama or dance movement therapy), focus primarily on adults with mental health difficulties and neglect child reported outcome measures.

Aim: The current systematic review aims to identify, appraise and synthesise the available evidence relating to outcomes that have been reported by children in primary mainstream schools (aged 5-12 years old).

Methods: Major electronic databases were systematically searched, specifically: AMED, PsycINFO, CINAHL, ERIC, MEDLINE, Campbell Collaboration Library, WHO ICTRP, Cochrane library databases, including CDSR, CENTRAL, HTA (01/01/1980 until 31/03/2018 published in English). The search included grey literature, journals of arts therapies and information from experts in the field.

Results: Seven studies met the inclusion criteria; two pilot-RCTs, two quasi-RCTs, a cluster-RCT, a controlled before-after design, and a study with a grounded theory design. Three interventions were in music therapy, two in art therapy, and two in dance movement therapy. None of the studies in dramatherapy met the inclusion criteria.

The interventions were delivered over 8-20 sessions, and lasted between 45-120 minutes, 1-3 times weekly. The sample sizes ranged between 14-138 participants, with a total of 358 participants. The interventions took place in USA, UK, Canada, South Korea, and Saudi Arabia. Children reported significant improvements from attending arts therapies on self-esteem, self-confidence, self-expression, mood, communication, understanding, resilience, learning, and aggressive behaviour, and small changes in the outcomes of depression, anxiety, attention problems, and withdrawn behaviours.

Conclusions: The location, the delivery of arts therapies, the outcome assessments and the quality of the studies varied significantly, which taken together, suggests taking caution when interpreting the findings. What this systematic review does do is highlight areas for improvement in future research and practice based on evidence that is grounded on children's perspectives. The implementation of these suggestions could

increase the benefits for children's health and wellbeing, and the wider inclusion of art therapies in national and international health-related guidelines.

Highlights

- Most primary outcomes were reported by adults, while children's perspectives were treated as supporting information for the secondary outcomes.
- Children reported significant improvements from attending arts therapies on self-esteem, self-confidence, self-expression, mood, communication, understanding, resilience, learning, and aggressive behaviour.
- Children reported small changes in the outcomes of depression, anxiety, attention problems, and withdrawn behaviours.
- Evidence of long-lasting effects is still unclear.
- Future research should: focus on the delivery of session which are theoretically grounded and suitable for the specific population; follow standardised reporting guidelines; and employ assessments that have been validated by children.
- Embedding qualitative and arts-based methods in experimental studies could make a substantial contribution to our current knowledge.

1. Introduction

Worldwide, approximately 10-20% of children experience mental health problems, with 13% of UK children reporting at least one diagnosed mental health difficulty, such as emotional and behavioural difficulties (Children's Commissioner, 2017). A major challenge in maintaining and reinforcing children's state of wellbeing is understanding where their uncomfortable feelings and thoughts are stemming from, a challenge which can be exacerbated by their limited vocabulary and communication skills (House and Loewenthal, 2009). The need to safely express these feelings is fundamental to a child's mental health (Pellegrini, 2011), requiring interventions that meet the children's needs, where he/she is, often in non-verbal ways. Arts therapies are such interventions and given their reliance on the arts as the main means for communication, they have been used to bypass the need for verbal skills (Jones, 2005; Karkou and Sanderson, 2006).

Arts therapies is an umbrella term which refers to psychotherapeutic approaches that facilitate psychological change and personal growth through the arts media, namely either art, music, drama or dance movement therapy (Karkou and Sanderson, 2006). The same authors have defined arts therapies as, "the creative use of artistic media for non-verbal and/or symbolic communication, within a holding environment, encouraged by a well-defined client-therapist relationship, in order to achieve personal and social therapeutic goals appropriate for the individual" (p.47). In the UK, art therapy, music therapy, and dramatherapy are recognized professional bodies regulated by the Health and Care Professions Council (HCPC), while dance movement psychotherapy is regulated by the UK Council for Psychotherapy (UKCP). All four arts therapies work with a range of client groups in a variety of settings, such as hospitals, clinics, outpatient treatment facilities, shelters, and schools (Karkou, 2010).

Interestingly, historical accounts of the development of arts therapies in different countries see them having a strong root in child-centred ideas in education. In the UK for example, Jennings (1997), Waller (1991) and Payne (1992) testify of the child-centred early developments of their respective type of arts therapies in education. Some of the pioneers in arts therapies, such as the music therapist Alvin (1975) specialized in working with children. However, for many years, working in schools meant that practitioners also required a teaching qualification, and were often employed

as teachers, allowing them to act as therapists alongside their other educational duties (Karkou and Sanderson 2006; Karkou 2010).

More recently arts therapists have seen a substantial growth of their employment in different educational settings. They may work as part of Children and Adolescent Mental Health teams (CAMHS) offering treatment to students who may be struggling. They can also be employed directly by schools to support students prior to any referral to mental health services (Oldfield and Carr, 2018). Arts therapies are getting increasingly used within schools to not only alleviate, but also prevent transition related difficulties. For example, according to Pellegrini (2011), arts therapists can prepare children for: hospitalisation; transition from primary to secondary schools; transition from special schools to mainstream education; and transition resulting from a change in family circumstance, such as, the death of a parent, and parental separation or divorce (Pellegrini, 2011).

Based on a survey of practitioners in the UK (Karkou 2010), approximately 60% of registered arts therapists in the UK are working with children in school-based settings. Reports from the professional associations suggest that approximately 25% of music therapists work in educational settings (Association of Professional Music Therapists, 2007; cited in Carr & Wigram, 2009), while more than half of music therapists work with children in different settings (Tomlinson, Derrington & Oldfield, 2011). Similar trends were reported back from some of the professional associations. For example, after contact with the British Association of Dramatherapists in 2020, approximately half of dramatherapists in the UK were working with children. However, the need to integrate arts therapies into regular mental health provision in schools has only recently been acknowledged. It has been argued that underpinning arts therapies practice with solid research will support such an integration (Uttley et al., 2015). A large amount of research is overdependent on small case studies, while there is limited literature regarding the effectiveness and the role of arts therapies within school policies and studies that present well-informed therapeutic interventions (Karkou, 2010). Existing systematic reviews with children and young people are limited to one of the arts therapies disciplines, mainly music therapy as the systematic review of systematic review by Kamioka et al. (2014) suggests.

In addition, outcome studies with children include measures that are most often completed by adults. However, research in children's perceptions has evolved in recent

years (Andresen et al., 2019), with increasing acknowledgment that children can have a substantial insight into their own wellbeing. There is a growing body of knowledge highlighting the importance of examining young children's perceptions about their lives, which demonstrate that these perceptions can be accurate and reliable (Andresen et al., 2017; Ben-Arieh and Kosher, 2018; Sofer and Ben-Arieh, 2014). The first worldwide research project on children's subjective well-being, Children's Worlds - the International Survey of Children's Well-Being project - has now collected data from more than 17,000 children and the findings show that children as young as eight are aware of their own needs and therefore, any effort to improve their wellbeing needs to include their voice (Rees et al., 2016).

At the same time, participant-reported outcome measures (known as PROMs) have seen growing recognition worldwide. There is a general movement towards the idea that, if the purpose of healthcare interventions is to improve how participants feel about their own health, it is the participant themselves who can provide the best source of information as to what improvements or changes might be attributable to the treatment (Devlin & Appleby, 2010). Kellett (2011) has also argued that it is important to empower children through research by acknowledging the importance of their voices. Since there is increased evidence on adults' perspectives of the outcomes of arts therapies for children, either by parents or teachers, it is important to focus on understanding the children's perspectives.

Furthermore, it is common amongst studies in arts therapies to look at the treatment of severe emotional problems or disorders, and often as a last resort when other treatment options have failed. It is possible that early detection and prevention might be an additional and important aspect of children's promotion of wellbeing (Goldie, Elliott, Regan, Bernal & Makurah, 2016; WHO, 2004). When opportunities for prevention are missed, the chances for children to drop out of school, self-harm, become aggressive, violent, or even suicidal, are significantly increased. According to Children's Commissioner (2017), schools in the UK report approximately 7,000 exclusions annually, equivalent to 35 children per day, while 1,300 of these exclusions come from primary schools only. Even though a quarter of a million children in primary schools are provided with support from mental health services (McDonald and Drey, 2018), 28% of referrals are turned away immediately and the waiting lists can take more than 200 days (Children's Commissioner, 2017). According to the Children's Society

(2018), 70% of children have not had appropriate interventions and supportive services at a sufficiently early age. Despite the growth of arts therapies provision in schools, delays in addressing children's mental health needs can have long lasting and potentially irreversible negative effects.

Based on the above gaps in knowledge, the present systematic review aims to re-establish the importance of the prevention and resilience model, and focus on the experiences and outcomes of arts therapies that have been reported by children themselves. In addition, this systematic review embraces all arts therapies as one field, a novel approach for this client population.

2. Aims

The overarching aim was to identify, appraise and synthesise available evidence relating to the outcomes of arts therapies that were generated directly from children aged 5-12 in primary mainstream school settings. We were interested in outcomes that were generated directly from children in either qualitative (e.g. interviews) or quantitative (e.g. self-rated standardised questionnaires) means. They will be referred to from now as child-focused outcomes. Therefore, the research questions were:

1. What are the outcomes of school-based arts therapies from children's perspectives?
2. How have child-focused outcomes been collected and assessed in qualitative and quantitative studies?

This systematic review is also expected to address the following gaps in the literature: a) identify primary and secondary outcomes reported by children; b) examine whether the quantitative outcome assessments have been validated, are reliable and sensitive from children's perspectives; c) examine whether qualitative outcome assessments are credible and dependable; d) explore the evidence of long-term outcomes and sustained benefits; and e) evaluate the impact of dosage (i.e. frequency, duration, intensity) on the targeted outcomes.

3. Methods

This systematic review was conducted in accordance with the Cochrane Handbook for Systematic Reviews (Higgins and Green, 2011). Methods were pre-specified and documented in advance in a protocol that was published on PROSPERO database for systematic reviews (Moula, Aithal, Karkou et al., 2018).

Twelve electronic databases were systematically searched: PsycINFO; MEDLINE; CINAHL; ERIC; Education Research Complete; Campbell Collaboration Library; DARE; and Cochrane library databases (CDSR, CENTRAL, HTA). Clinical trial registries were also searched to identify on-going trials (e.g. WHO ICTRP). Hand searches were conducted in book and journals, while experts in the field were also contacted. Experts included at least one expert from each discipline who has published widely in relevant books and journals. Studies were restricted to those published in English from 01/01/1980, owing to the fact that arts therapies were first introduced into school settings in the early 1980s. The searches were completed on 31/03/2018.

The eligibility criteria were determined based on the PICOS framework (Bowling and Ebrahim, 2005) and were independently assessed by two reviewers (Table 1). The screening process was recorded in accordance with the PRISMA guidelines (Liberati et al., 2009) to ensure that it was undertaken systematically and transparently at all stages (Figure 1).

[Figure 1 and Table 1 near here]

The searches included all relevant keywords, older terms or terms that might be used in different countries (Table 2). The search strategy was built around identifying key terms for (i) arts therapies (ii) children and (iii) school settings. An example search string is shown in Table 3.

[Table 2 and 3 near here]

Given that implementing Randomised Controlled Trials in school settings may be highly challenging for methodological and ethical reasons, quasi-experimental designs were considered. Qualitative and arts-based studies were also included as they

would allow for a deeper exploration of what is valuable from children's views – information that might be missed in quantitative studies.

The quality of the included studies was assessed by two reviewers, and any discrepancies were resolved with the involvement of a third reviewer. For the quality analysis of the quantitative synthesis, the assessment criteria according to the ROBIS tool (Higgins and Green, 2011) were based on establishing the following: sequence generation; allocation concealment; blinding of participants; personnel and outcome assessors; incomplete outcome data; selective reporting bias; other potential risks of bias. For the qualitative synthesis, the following criteria were assessed: credibility; transferability; dependability; confirmability (Higgins and Green, 2011). For mixed methods designs, the above criteria were applied to the qualitative and quantitative methods respectively.

4. Results

Initially, 13,941 potential results were identified from databases (Table 4), and additional 28 results from hand-searching grey literature, such as research papers that are not formally published in books or journals (Figure I). Contact with experts in the field helped to identify some additional papers, however, these did not meet the inclusion criteria as most of them were case studies or focused on outcomes and experiences that were reported by teachers or parents.

Following title, abstract, and full-text screening, seven studies were eligible for inclusion within this review (Abdulazeem, 2014; Choi et al., 2008; Deboys et al., 2017; Hilliard, 2001; Kim, 2017; Koshland, 2004; Rousseau et al., 2005) (358 participants). The characteristics of each study are summarised in Table 5. Because of the high heterogeneity and diversity in the outcome measures across studies, meta-analysis was not feasible.

[Table 4 and 5 near here]

4.1 Quality appraisal

The methodological quality of each study as judged according to Cochrane risk of bias is shown in Table 7. The most important information was the following:

Sequence generation, allocation concealment, and blinding

Randomisation and allocation concealment was either not feasible (Hilliard, 2001; Rousseau et al., 2005; Koshland et al., 2004) or there was no information provided as to what processes were followed (Kim, 2017; Choi et al., 2008). Only one study (Abdulazeem, 2014) provided details regarding how children were randomised and allocated to groups. Blinding to the intervention was regarded as not feasible and thus, not attempted in any of the reviewed studies.

Incomplete outcome data

Four out of seven studies provided sufficient information about the participants' baseline characteristics (Choi et al., 2008; Kim, 2017; Rousseau et al., 2005). Three studies provided insufficient baseline information (Hilliard, 2001; Koshland et al., 2014; Deboys et al., 2017), potentially making the representation of the samples biased towards gender, age, or other unknown characteristics.

Although a full analysis set was only reported in three studies (Abdulazeem, 2014; Rousseau et al., 2005; Kim, 2017), most authors reported that no risk for attrition was detected because of participants' withdrawal or missing data. Kim's study (2017) is the only exception, as the study lost half of the participants from the recruitment stage until the implementation of the intervention. This was either because children changed class, or left school, highlighting the importance of starting the arts therapies sessions as soon as possible after recruitment. However, practical considerations for administering arts therapies for the arts therapist evolve around the lack of sufficient and sustainable funding to practice, with part-time hours being common in this profession.

Selective reporting

Without the study protocols available, it was impossible to assess fidelity and how the interventions were implemented. No information related to challenges and

modifications was available. These details would be valuable to understand whether the negative findings were caused by implementation failure or inadequate optimisation of the intervention, highlighting some barriers that need to overcome in future research.

Furthermore, without the full analysis set available, it was difficult to appraise whether studies were subject to selective reporting. Most differences between the intervention and comparison groups were based on t-tests scores and probability values, and do not always include effect sizes.

Risk of harm

As in all psychotherapeutic interventions, arts therapies also hold the risk of causing harm to children. For instance, if some children are aware that they are being compared with children who receive arts therapies, this might introduce power and inequality issues with the potential to cause stigma and harm. During arts therapies groups, it is possible that 'quieter' children might not receive as much attention as the 'louder' children. In some cases, the number of sessions or the intensity of the intervention might not be sufficient or appropriate. Arts therapies may also activate emotions that due to limited time or bad clinical management may remain unresolved. In addition, there might be harmful impact from interruptions during the sessions and from a sudden termination of the therapeutic intervention. Any such information about children's safety, potential harms or adverse effects would have been valuable; yet there was no such information provided in any of the reviewed studies. Previous systematic reviews, such as Uttley et al. (2015), confirm the lack of sufficient reporting of adverse events, an area that is important to be addressed in future studies.

Quality appraisal for the qualitative study

Deboys et al. (2017)'s study was regarded as having a high level of credibility since the findings were grounded on children's perspectives, while cross-checking methods were employed for the interpretation of the results, such as involving other researchers and children themselves. Such methods were not reported in Abdulazeem's study (2014) and therefore, the credibility on this study was rated as low. Because of the small sample size in both studies, insufficient reporting of children's demographic characteristics and contextual background information, it was unclear whether these findings could be transferrable. The dependability and confirmability were rated as high in both studies, because the methodology was appropriate, clear and adequately documented, while the

analysis of findings was grounded in the data and children's perspectives.

[Table 6 and 7 near here]

4.2 Description of included studies

The study designs varied from controlled before-and-after (Rousseau et al., 2005) to pilot RCTs (Abdulazeem, 2014; Choi et al., 2008), quasi-RCT (Hilliard, 2001, Koshland, 2004), cluster RCT (Kim, 2017). Only one qualitative study was eligible for inclusion, which employed Grounded Theory (Deboys et al., 2017). The main reasons for exclusion of qualitative studies were: a) they were assessing the process, rather than the outcomes of arts therapies; b) they were assessing arts therapies from adults' perspectives; and c) they lacked clear research questions.

The sample sizes ranged from 14 to 138 participants, providing this systematic review with data from 358 participants in total. The included studies involved children with different conditions; specifically, emotional and behavioural difficulties, learning difficulties, highly aggressive behaviour, as well as children who have experienced maltreatment, bereavement, and immigration.

Two studies were conducted in the USA (Hilliard, 2001, Koshland, 2004), two in South Korea (Choi et al., 2008, Kim, 2017), one in Canada (Rousseau et al., 2005), one in the UK (Deboys et al., 2017), and one in Saudi Arabia (Abdulazeem, 2014).

Comparisons were made with control groups that either had no other intervention, were waiting lists or consisted of standard care/treatment as usual. One study had no control group (Deboys et al., 2017), and in one study (Abdulazeem, 2014) there was an active control group which was physical education.

4.3 Interventions

Details related to the intervention were based on the TIDieR template for intervention description and replication checklist (Hoffmann et al., 2014) and are presented in Table 6.

[Table 8 near here]

4.3.1 Arts therapies dosage

The arts therapies lasted for a minimum of 8 weeks (Hilliard, 2001) to 20 weeks or more (Deboys et al., 2017). The duration ranged from 45 minutes (Abdulazeem, 2014) up to two hours (Rousseau et al., 2005). The frequency varied from once a week (Deboys et al., 2017; Hilliard, 2001; Kim, 2017; Koshland et al., 2004; Rousseau et al., 2005), twice a week (Choi et al., 2008), or three times per week (Abdulazeem, 2014). The length of arts therapies delivered in total ranged from eight hours (Hilliard, 2001) to 30 hours (Choi et al., 2008).

4.3.2 Type of arts therapies

Art therapy: Two studies in art therapy were identified; a controlled study (Rousseau et al., 2005), and a grounded theory (Deboys et al., 2017).

Rousseau et al. (2005) delivered twelve sessions of group art therapy for two hours once weekly (total of 24 hours) to immigrants and refugees who attended integration and regular classes at primary schools. The aims were to: help children re-create a meaningful world around their (pre-)migration experience; foster identity differences; c) bridge the gap between home and school. The art therapy programme was developed and piloted for five years in Montreal's schools. Children were asked to tell a story of a character of their choice who has experienced migration. They were then invited to draw and discuss how their character left the homeland, travelled, arrived in the host country, and how their future could look like. Children explored myths related to non-dominant cultures, what it means to be in a minority position, and brought their own stories from their communities.

Deboys et al. (2017) delivered 20 sessions of one-to-one art therapy, once weekly (total of 20 hours) for children who experienced physical, emotional, social, or communication difficulties. Because of the one-to-one mode of delivery, the art therapists involved did not adhere to a pre-determined protocol of activities; instead each session was personalised and adjusted according to children's needs.

Music therapy: Three experimental studies were identified; a pilot RCT (Choi et al., 2008), a quasi-randomised study (Hilliard, 2001), and a cluster RCT (Kim, 2017).

Choi et al. (2008) delivered 15 sessions of group music therapy, twice per week (total of 30 hours), to children with highly aggressive behaviour. The sessions were developed by three music therapists for over eight years. The first phase aimed at building trust between the group members. The second phase aimed at helping children to accept and understand their emotions. The third phase aimed at the expression of anger and negative feelings through percussion instruments and relaxation methods. Lastly, children were invited to reflect and consider changes in their life, and develop self-care. The activities involved singing songs, analysis of libretto, making and playing instruments, and song writing.

Hilliard's (2001) study involved eight sessions of group music therapy, once per week (total of 8 hours), with children who had experienced bereavement. The full protocol is published, but overall the sessions aimed at children's behaviour modification, identification and expression of their emotions, the intellectual understanding of grief, and challenging the cognitive distortions through reframing and reshaping. The techniques included singing, song writing, rap writing, rhythmic improvisation, structured drumming, lyric analysis, and music listening.

Kim (2017) delivered twelve sessions of group music therapy, once a week (total of 12 hours), to children exposed to ongoing maltreatment and poverty. A semi-flexible treatment guideline was developed based on a literature review, the music therapists' clinical experience and a pilot study. The aims were to provide a safe environment and musical framework that would enable children to explore and express their thoughts and feelings. During the first part of the sessions, music therapists used structured and unstructured improvisation methods to encourage children decide which instruments they want to play with. They could play in solos, peers, groups, or duets with the music therapists. In the second part, the music therapists introduced pre-selected (based on children's needs) songs as opportunities for discussion, song parody, and song writing.

Dance movement therapy: Two experimental studies were identified; a pilot RCT (Abdulazeem, 2014), and a quasi-randomised study (Koshland, 2004).

Abdulazeem (2014) delivered 24 sessions of group movement therapy, three times per week for eight weeks (total dosage of 24 hours), to children with mild learning difficulties. The sessions were focused on the work of Marian Chace. Sessions were built around the four concepts of this interactive approach: (a) body action, (b) symbolism, (c) therapeutic movement development, and (d) rhythmic group activity. The author's thesis provides detailed description of the goals and activities for each session.

Koshland (2004) delivered 50 minutes of group dance movement therapy, once per week for twelve weeks (total of 10 hours). The sessions aimed at violence prevention and a detailed description of each session is published. The programme was developed over three years and these six elements structured each session: group focus; read a story; personal space; social space; movement problem; closure and discussion. Children's stories regarding issues of diversity, exclusion, bullying, and relationship problems were selected. These stories were used to raise children's awareness of how others might feel, gain self-control, identify their difficulties, and discover skills for management of disruptive behaviour and violence prevention.

Dramatherapy: No study in dramatherapy met the inclusion criteria. Relevant publications were excluded because: they were either case studies; the outcomes were assessed by adults; they were based in clinical rather than educational settings; or lacked clarity in the research question(s) and methodology.

4.3.3 Theoretical frameworks

Only two studies (Abdulazeem, 2014; Hilliard, 2001) provided information related to the theoretical framework of the sessions. Specifically, Abdulazeem (2014) delivered interactive dance movement therapy sessions based on the work of Marian Chase (Karkou and Sanderson, 2006), with a clear focus on the body action, symbolism, therapeutic movement, and rhythmic group activity. Hilliard (2001) followed a cognitive behavioural approach of art therapy which aimed to modify children's behaviour, help them identify, understand and express their emotions, and challenge existing cognitive distortions through cognitive reframing and reshaping.

From the remaining studies, two of them (Deboys et al., 2017; Koshland et al., 2004) described therapeutic principles in art therapy and dance movement therapy that created links to the humanistic school of thought with person-centred underpinnings, such as approaching children with warmth and empathy (Karkou and Sanderson 2006). Kim's (2017) description of the intervention (2017) suggested that the music therapy sessions were based on free music playing and improvisation, potentially referring to the interactive approach to music therapy that began with Juliette Alvin (Karkou and Sanderson, 2006). In contrast, Choi et al. (2008) appeared to follow a behavioural approach to music therapy (Karkou and Sanderson, 2006) through which the main aim was to modify children's biophysiological responses, improve self-awareness and autonomic behaviours. Lastly, the description of the intervention in Rousseau et al. (2005) suggested the use of a psychodynamically-informed model of art therapy (Karkou and Sanderson 2006), which was focused on revisiting children's past experiences of migration as a way of processing its emotional impact.

4.3.4 Child-focused outcomes and outcome measurements

The primary child-focused outcomes were self-esteem, mood, grief symptoms, violence reduction, emotional and behavioural difficulties. Interestingly, there was no method or tool that was used in more than one of the reviewed studies.

Improvements in self-esteem were measured in two studies. Choi et al. (2008) used the Rosenberg Self-Esteem Scale (RSES), which consists of 10 statements relating to children's beliefs regarding themselves. This tool has only been validated with high school students, and adults in psychiatric care. Rousseau et al. (2005) implemented the Piers-Harris Children's Self-Concept Scale (CSCS), which is also designed to explore children's perspectives and feelings of themselves. Twelve questions refer to children's popularity, and ten to happiness and satisfaction. This tool has been used worldwide in different settings and its validity and reliability are well established. The internal consistency was satisfactory, with Cronbach's alpha ranging from .57 to .71 for popularity and happiness/satisfaction scores.

Changes in mood and grief symptoms were measured in Hilliard's study (2001) through the Depression Self-Rating Scale (DSRS), which assesses the frequency that children experience feelings of sadness, boredom, or desire to cry. The authors

considered this a reliable tool with alphas ranging from 0.73 to 0.86 and good concurrent validity with a 0.81 correlation with the Children's Depression Inventory.

Violence reduction was assessed in Koshland's et al. study (2004). The Goldstein's 'Nonreader's Hassle Log' was completed to record a) aggressive incidents; b) feelings of witnessing the incidents; c) how children respond emotionally to these incidents. This was also used to assess the secondary outcomes of improvements in children's pro-social skills, self-control, emotional regulation, and problem-solving. The validity and reliability of this tool is unclear. Albeit being a straightforward and child-friendly, this instrument offers a limited selection of pictures that represent feelings, while some pictures were confusing (Koshland et al., 2004).

To explore changes in internalising and externalising behaviour problems, Kim (2017) used the Child Behaviour Checklist – Youth Self-Report (CBCL-YSR). Two scales account for internalizing (i.e. anxiety, depression, withdrawal, somatic complaints) and externalizing behavioural difficulties (i.e. aggressive, delinquent behaviour). This has performed with good reliability and validity, and Cronbach's alpha internal consistency between 0.85 and 0.75 (Kim, 2017). However, this tool is suitable for adolescents aged eleven to 18 (Achenbach & Rescorla, 2001) and has not been validated for children as young as seven years that Kim (2017) recruited.

Similarly, to evaluate differences in emotional and behavioural difficulties, Rousseau et al. (2005) used "Dominic", a computer-based questionnaire. This is a children's self-report consisting of 90 pictures showing a character named Dominic in a variety of situations. Children are asked to indicate whether sometimes they act or feel like Dominic. The score for internalising difficulties is calculated by adding up the number of positive answers to 46 pictures related to phobias, general anxiety, separation anxiety, and depression. The score for externalising difficulties is calculated by the number of positive answers to 41 pictures related to attention deficit, hyperactivity, conduct, and oppositional disorders. The questionnaire has been validated since 1980s and used with children from various ethnic groups in clinical and research settings in Canada. The Cronbach's alpha ranged from .88 to .94 for both internalizing and externalizing difficulties' scores (Rousseau et al., 2005).

Abdulazeem (2014) and Deboys et al. (2017) used arts-based methods to explore children's perspectives. Abdulazeem (2014) explored children's feelings and

experiences of participating in the movement therapy through their paintings. Deboys et al. (2017) facilitated arts-based semi-structured interviews where children were invited to reflect on how the arts therapies have been helpful to them via the use of art materials.

4.4 Outcomes of the interventions

Art therapy: In the grounded theory study by Deboys et al. (2017), children reported improvements in their self-expression, mood, confidence, communication, understanding, resilience, and learning. In Rousseau et al.'s (2005) study, children reported reduced internalising and externalising behavioural difficulties, and improvement in the feelings of popularity and satisfaction. However, the effects on self-esteem was only observed in the integration classes, and particularly in boys. The boys in the regular classes, and girls in both regular and integration classes, did not report any statistically significant differences in self-esteem. It is also worth noting that the effects of art therapy on self-esteem tended to decrease with children's age.

Music therapy: In Choi's et al. (2008) study, children reported statistically significant reductions in aggression and improvement in self-esteem. In Kim's study (2017), both the intervention and control group showed improvement in depression and anxiety. With regards to withdrawn behaviours, children in the intervention group got slightly better, while children in standard care got worse over time. The effect sizes were small in all measures. In Hilliard's study (2001), children reported only small changes in the primary outcome of depression, but only 25% of the children who were depressed pre-intervention, remained depressed post-intervention.

Dance movement therapy: Abdulazeem (2014) observed differences in children's paintings. It appeared that prior to movement therapy children used darker colours and had limited coordination skills. After the sessions, there was a noticeable increase in the use of light colours, while they also showed improved organisation skills and clear boundaries. Attitudes towards each other gradually changed and children seemed to become more socially inclusive. These changes were also supported by the interviews. In Koshland's et al. (2004) study children reported a statistically significant decrease

of aggressive behaviours and feelings of fear in handling themselves in aggressive situations.

5. Discussion

5.1 Summary of main results

This review gathered evidence from seven studies involving 358 participants. Evidence was synthesised from six quantitative and one qualitative study. School-based arts therapies were associated with the following outcomes:

a) Significant improvements in: self-esteem; self-expression; coordination; collaboration; satisfaction; mood; confidence; communication; understanding; resilience; learning; aggressive behaviour and aggressive incidents at school;
b) Small changes in: depression; anxiety; attention problems; and withdrawn behaviours.

These results need to be considered with caution since the interventions took place in different countries and therefore, there may be important differences both in the training that arts therapists have received and in the delivery of their own practice. As it is mentioned earlier, there were also significant variations in the methodological quality, which might explain why some interventions performed better than others. For example, the outcomes that showed smaller changes were mainly observed in studies with the higher risk of bias due to insufficient reporting (Hilliard, 2001), lack of reliable and validated outcome measurements (Koshland et al., 2004), challenges at the stage of recruitment, high attrition rates (Kim, 2017), or the implementation of interventions that might not be sufficiently theoretically informed.

The only qualitative study (Deboys et al., 2017) revealed a potential link between child reported changes and their awareness of the nature of the intervention and its aims. Children who had a clear idea of the aims of the sessions, tended to be able to identify changes in the observed outcomes. This, however, highlights a potential Hawthorne effect with children reporting improvements in the targeted outcomes in an effort to please the arts therapists (Payne and Payne, 2004). Therefore, future studies of this nature should at least blind participants to the true nature and outcomes of the study or ideally involve a double-blind experimental design.

At the same time, it should be acknowledged that children's opinions are not always considered in primary research outcomes. Most primary outcomes were reported by adults, while children's perspectives seemed to be treated as supporting information for the secondary outcomes. Moreover, it was often a challenge to distinguish which outcomes were primary or secondary; an issue that was also raised in previous reviews (Clapp et al., 2018). This raises a further difficulty in identifying those primary outcomes that were of greater importance for children.

Not unlike findings from previous reviews (McMillan et al., 2018; Clapp et al., 2018; Uttley et al., 2015; Koch et al., 2014), the evidence of long-lasting effects is still unclear. In this review, only two out of the seven studies collected follow-up data. Specifically, Deboys et al. (2017) interviewed children after one year and found sustainable benefits in children's confidence, self-esteem, communication, and resilience. Abdulazeem (2014) collected follow-up data, however, only from adults' perspectives; which was not the focus of this review. Without follow-up data it is difficult to know whether any of the reported significant changes or indeed small changes to outcome-related measures are evident long-term, suggesting a real need for studies to routinely focus on the longevity of outcome measures.

Arts therapies varied significantly in duration, length, and frequency. The most common practice was twelve hours in total, with the sessions taking place for an hour, once or twice per week. In those interventions with the longest duration per session, specifically two hours (Hilliard, 2001), changes in children's self-reported depression scores were not statistically significant. These findings raise the issue of whether longer sessions are indeed more beneficial than shorter. One possible explanation is that during longer sessions, children become more aware of their emotions, which may come with greater amount of distress or fear of separation when arts therapies come to an end (Curran et al., 2019).

Interestingly, those studies with the least number of sessions (i.e. 12 sessions; Koshland et al., 2014) and highest number of sessions (i.e. 30 sessions; Choi et al., 2008) focused on regulating aggressive behaviour as their primary outcome. In both studies, children experienced a statistically significant decrease in aggressive behaviours. The variation in number of sessions between studies with the same outcome measures raises some questions around how the number of sessions were selected, for instance, whether the choice was grounded on underpinning theories, prior

research and/or the needs of the children, or simply the result of practical limitations. It is possible that clinical judgement played a less important role than the availability of funds, supporting staff or suitable rooms.

Comparisons across systematic reviews and meta-analyses is problematic due to limited references to children's perspectives. When comparisons can be made, results vary. For example, Uttley et al. (2015) found significant reductions in depression in six out of nine studies, and anxiety in six out of seven studies; the focus of this review however, was on both adults and children. While a review by McMillan et al. (2018), found limited evidence regarding the effectiveness of art therapy for depression and anxiety, findings that are in agreement with the present study, a recent systematic review, focused on adults, showed moderate-quality evidence that music therapy is effective for both clinician-rated and patient-reported depressive symptoms (Aalbers et al., 2017). These results are also supported by reviews in dance movement therapy for adult populations (Karkou, Aithal, Zubala, and Meekums, 2019; Koch et al., 2019). Such discrepancies could be explained by other elements, such as the specific type of intervention followed, the mode of delivery, insufficient reporting, or the type of outcome measure used. For example, there are limited reliable and validated measurements for anxiety and depression in early childhood. Hence, it is possible that depression and anxiety as diagnostic categories require further development to align with children's understanding and their wider developmental needs as discussed in the following section.

5.2 Implications for future research and practice

Emphasis on prevention and resilience

The main aim of this systematic review was to re-establish the importance of the prevention and resilience model through the evaluation of interventions in early childhood, and before severe difficulties arose. The findings are promising since children reported improvements in the way they perceived themselves, their self-expression, self-esteem and confidence. In addition, arts therapies supported children to understand better their own and others' feelings, communicate more effectively with others, and feel more resilient. The studies also showed that cases of violent behaviours

at school were significantly reduced as children showed improved self-control, emotional regulation, and problem-solving skills.

It is however, worth noting that in most of the reviewed studies, prevention-related outcome measures that captured children's strengths were missing. Outcome measures that focused on wellbeing and quality of life for example were not regularly included. Instead, 'treatment-oriented' measures, such as for symptoms of anxiety and depression were preferred. The only study that looked at outcome measures on wellbeing was the one completed by Abdulazeem (2014) that assessed this outcome from parents' and teachers' perspective, both of whom reported statistically significant improvements in children's wellbeing. Children's perspectives however were missing. To gain a better understanding of the preventive potential of arts therapies, it would be helpful for future studies to include outcomes that are closely linked to positive changes in children's life, such as resilience and wellbeing.

Reporting on clinical practices

Children appeared to show greater improvements in the interventions that followed humanistic/child-centred, interactive, and behavioural theoretical approaches. The interventions that implemented free improvisation and psychodynamic models also suggested some improvements but to a lesser extent. It is important to mention that the authors did not make any reference to these therapeutic models, and the assumption is based on the available information from the description of the sessions. The intervention where children reported only small changes in the primary outcome of depression had applied a cognitive behavioural therapeutic approach. However, this was also the study with the highest risk of bias. While children's perspectives are key indicators, the methodological quality of studies needs to be taken into account prior to further interpretations.

A considered development of appropriate interventions that are clearly linked to children's needs and informed by children's perspectives will be a substantial contribution to the research literature and to relevant practice. Publications such as Karkou (2010), Tomlinson, Derrington & Oldfield (2011) describe current practice and research with children but may not move far enough to developing well-informed and thoroughly researched clinical interventions that establish the most useful ways of addressing children's psychological health.

Insufficient reporting

Hoffman et al (2014) report that in order to enhance transparency and the impact of research interventions on health, authors need to follow properly endorsed reporting guidelines. This review suggests that even when interventions are properly designed and implemented, it is difficult to appraise the quality and synthesise the results because of inadequate reporting. The most important missing information related to: trustworthiness; fidelity; recruitment; attrition; descriptive statistics; potential to harm; sufficient description of the principles and methods of the interventions; and the approximate cost of implementation.

Ultimately systematic inclusion of these details in future research studies is needed to enhance its usefulness. For instance, in this review, four studies provided all descriptive statistics (Abdulazeem, 2014; Choi et al., 2008; Kim, 2017; Rousseau et al., 2005), and four out of seven studies described the principles and methods of arts therapies in ways that could be replicable in future research and practice (Abdulazeem, 2014; Hilliard, 2001; Koshland et al., 2004; Rousseau et al., 2005), while three of them only provided a basic, and fairly general, description (Choi et al., 2008; Deboys et al., 2017; Kim, 2017).

Enhancing qualitative evidence

Only one qualitative study met our inclusion criteria. This was because either most of the qualitative evidence was based on case studies, which were excluded in this review, or the studies focused on adults', rather than the children's, perspectives. Although case studies may have captured children's perspectives, given their abundance in arts therapies it became impossible to include them in this review within the time frame available. The only qualitative study included in this review (Deboys et al., 2017) showed children's feelings of disappointment and sadness when the arts therapies were over. It is unclear whether there is a link between these feelings and findings which suggest that children get worse immediately after the end of arts therapies. Deboys et al. (2017) also concluded that children who were fully aware of the aims of the intervention reported the most significant changes. This suggests a need for child-appropriate explanations prior to the commencement of therapy as well as a greater understanding of children's perspectives at the end of the intervention. Embedding such qualitative evidence in future experimental studies will allow for a more holistic understanding of the outcomes.

Outcome measurements

Overall findings from the review highlight several deficits in the key outcome-related areas. Several studies used outcomes measures that had not been validated with their specific age group. This is potentially an indicator of the paucity of available measures and suggests the need for age-appropriate reliable, validated, and standardised outcome measures to be developed in future studies. In addition, the primary outcomes were mostly reported by adults' perspectives, and mainly the secondary outcomes were reported by children. A shift from instruments that assess second-person outcomes (from parents or teachers), to the assessment of first-person outcomes (children) would be highly important for future research in order to ensure that the evidence is grounded on children's perspectives. This could be achieved for example by simplifying the complexity of the language used in the questionnaires, the mode of expression in the responses or using visual aids and prompts.

Extended follow-up periods are also needed so that outcomes are assessed after a year or more. This would enable the evaluation of long-terms effects on children's development and sustained benefits. It would also help to understand whether long-lasting changes have indeed occurred, or whether the reported effects were due to participants' temporary confidence on potential change (Younge et al., 2015).

In this review, all studies explored either different outcomes, or the same outcomes but through different assessments (Choi et al., 2008; Koshland et al., 2004; Rousseau et al., 2005). This led to a high heterogeneity in the results, inconclusive evidence, and difficulty in identifying primary outcomes that need to be addressed in future research. Furthermore, some of the outcomes were broad, such as mood, communication, or understanding (Deboys et al., 2017). To understand which mechanisms are responsible for any observed changes, future studies need to focus on well-defined outcomes which are theoretically grounded on the interventions (Clapp et al., 2018).

5.3 Limitations

One limitation of the review is that narrow inclusion criteria were employed focusing only on the outcomes that have been reported by children. Studies on play

therapy were excluded on the basis that play therapy follows different principles and practicalities, with the baseline being on 'play' rather than on the 'arts'. Many studies were excluded from the review because of the study design utilised (i.e. case studies), as were studies with adolescents or children in special schools. These decisions were made because of restrictions in time and resources, and moreover, because this systematic review was conducted in order to develop an arts therapies intervention specifically for primary mainstream school children.

It is possible that although due diligence was taken when carrying out this systematic review, some grey literature, such as research papers that are not formally published in books or journals, may have been missed. Likewise, although a wide range of key words and search methods was used, it is possible that some studies might have also been missed if they were inaccurately indexed in the databases. Thus, a review with a different set of inclusion criteria might have yielded different results.

Finally, the quality appraisal was often based on limited information as there is currently no guidance regarding how to assess the risk of bias in older studies without published protocols (Viswanathan et al. 2012).

5. Conclusions

Despite considerable progress towards the inclusion of children in research, their views were perceived as complementary to adults' views in the included studies. Since children and adults have fundamentally different ways of thinking, accessing their own views would allow insights into this stage of life that we would not have otherwise (Andresen et al., 2019). Redirecting the focus of the research to encompass children's perspectives would result in better-informed policies and practice decisions that are more aligned to children's needs and priorities.

The use of standardised reporting guidelines is also strongly recommended to allow for replication and quality appraisal; in quantitative studies it reduces the risk of bias, whilst in qualitative studies improves trustworthiness. The need to follow clear methodological descriptions and recognised terminology when describing the research designs are also highlighted as a way of reducing ambiguity and confusion.

Specific and well-defined outcomes are needed in order to identify mechanisms responsible for change. Grounding these outcomes to theory and research on process can lead to well considered studies with replicable capacity. Researchers are also encouraged to present the outcomes and potential benefits in a straightforward manner both for practitioner and policy-makers. This would help arts therapies to receive public recognition and inclusion in Cochrane reviews as well as in national and international guidelines, such as from the National Institute for Health and Care Excellence (NICE).

There is a great need for evidence of long-term outcomes of arts therapies and sustained benefits. It is also important for qualitative methods to be nested in future experimental studies so as to shed light into children's feelings and perspectives which might not be captured through quantitative methods only. In terms of arts-based evidence, children's drawings were the only arts-based method used. Since arts therapies rely heavily on non-verbal communication, the development of arts-based research methods that capture children's non-verbal responses – such as through actions, movements, gestures, or music making - could make a substantial contribution to our current knowledge and place children's voices at the heart of psychological interventions such as arts therapies.

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Figure I: PRISMA Flow Diagram

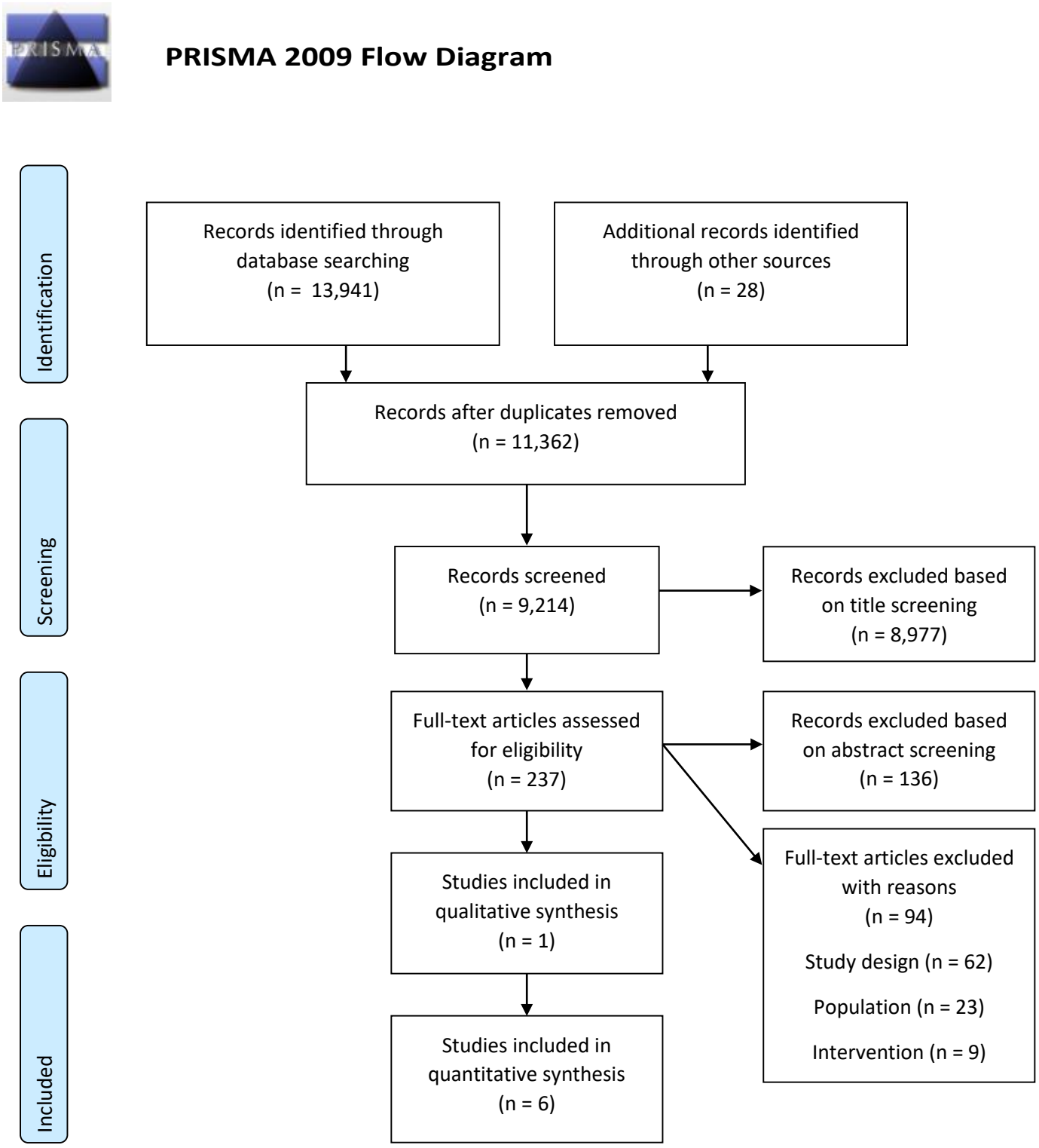

Table 1: Eligibility criteria

	Inclusion criteria	Exclusion criteria
Population	Studies in which the majority (more than 75%) of the participants were younger than 12 and older than 5 years old. Studies conducted in mainstream primary schools.	Studies in which the majority (more than 75%) of participants were older than 12 or younger than 5 years old. Studies conducted in special schools, healthcare, clinical or other therapeutic settings.
Intervention	Studies of music, art, dance movement and drama therapy. The arts therapies should be delivered by trained, qualified and registered arts therapists with the local associations of the country where each study is based. However, studies based in countries where professional associations are not currently established were considered for inclusion. The arts therapies should have a clearly articulated psychotherapeutic intent with a well-defined psychotherapeutic relationship between the arts therapists and the client(s).	Interventions which combined arts therapies with other psychological therapies; unless sub-group analysis was available. Studies with inadequate evidence regarding how arts therapies were delivered, or the presence of an arts therapist. Studies without a clearly articulated psychotherapeutic intent and well-defined psychotherapeutic relationship between the arts therapists and the client(s), or insufficient information to distinguish arts therapies from arts classes, therapeutic arts, or arts education.
Comparison	No treatment, wait-list, or other treatment	
Outcomes	All outcomes reported by children at the end of the intervention Outcomes at the end of the intervention (immediate), up to one-year post-intervention (≤ 12 months), and more than one-year post-intervention (>12 months)	Outcomes reported by adults (i.e. teacher-, or parent-reported assessments). Studies that did not provide information regarding the outcomes of art therapies, but focused only on the evaluation of the therapeutic process.

Study design	Quantitative studies: Randomised controlled trials (RCTs), pilot-, cluster-, or quasi-RCTs, quasi-experimental, controlled before and after studies. Qualitative studies: Interviews, focus groups, surveys. Arts-based studies: Children's artifacts that reveal data regarding their own perspectives of the arts therapies outcomes. Studies that focus on the outcomes with a clear methodology and research question(s).	Case studies, reviews, editorials, policy reviews and statements, commentaries, studies not published in English. Studies that focus on the process rather than the outcomes. Studies without clear methodology and research question(s).

Table 2: Search terms mind-map

Intervention: **Arts therapies**	**Population:** **Children**	**Setting:** **Schools**
art therapy art psychotherapy music therapy dance therapy dance movement therapy dance movement psychotherapy drama therapy dramatherapy drama psychotherapy child centred therapy analytical art therapy group analytical arts therapy client centred arts therapy arts based therapy creative arts therapy expressive arts therapy structured arts therapy group arts therapy	child kid boy girl young people 5-12 years old (each year separately) student pupil	primary school primary education elementary school mainstream school mainstream education

Table 3: Example search string

	MEDLINE (OVID)
1	Art Therapy/
2	SENSORY ART THERAPIES/
3	art.ti,ab.
4	draw.ti,ab.
5	(artist or artistic).ti,ab.
6	artwork.ti,ab.
7	(drawing* or sketching or sketches or paint*).ti,ab.
8	(etch* or doodle* or "still life" or tracing).ti,ab.
9	or/1-8

Table 4: Number of results across the electronic databases

Abbreviations: PsycINFO: Psychological Information Database; MEDLINE: Medical Literature Analysis and Retrieval System Online; CINAHL: Cumulative Index to Nursing and Allied Health Literature; ERIC: Education Resources Information Center; ERC: Education Research Complete; Cochrane library databases: a) CDSR: Cochrane Database of Systematic Reviews; b) CENTRAL: Cochrane Central Register of Controlled Trials; c) HTA: Health Technology Assessment Database; DARE: Database of Abstracts of Reviews and Effects;

Electronic database	**Number of results**
PsycINFO	7,162
MEDLINE	4,350
CINAHL	918
ERIC	851
ERC	600
Campbell Collaboration	29
CDSR / CENTRAL / HTA	23
DARE	8
Total:	**13,941**

Table 5: Description of included studies

Author (Year) Journal / Funding	**Aim**	**Study design**	**Participants**	**Intervention**	**Control group**	**Setting / country**	**Primary outcomes**	**Key results**
Abdulazeem (2014) PhD Thesis Queen Margaret University Government of Saudi Arabia	To investigate the impact of movement therapy on the perceptual-motor abilities and emotional well-being of children with mild learning difficulties	Pilot-RCT	60 children aged 6-9 years with mild learning difficulties Only boys	Movement therapy	Physical education classes	2 primary schools / Saudi Arabia	Physical and emotional well-being Pre-test, post-test, 3 months after	QNT: Statistically significant differences in physical and emotional well-being reported by parents and teachers QL: Lighter colours used in children's drawings post-intervention, improved coordinative and collaborative skills
Choi, Soo Lee, Lee (2008) Journal of Evidence-based Complementary and Alternative Medicine No funding reference	To investigate the effects of group music therapy on aggression and self-esteem in children with highly aggressive behaviour	Pilot-RCT	48 children aged 10-12 years with highly aggressive behaviour 24 girls 24 boys Mean age: 11 years	Music therapy	Care as usual	1 primary school and 1 after-school in South Korea	Self-esteem Aggression Pre-test, post-test	QNT: Statistically significant reduction of aggression and improvement of self-esteem reported by children QL: Parents and teachers reported reduced aggression for both groups
Deboys, Holttum, Wright (2017) International Journal of Art Therapy	To explore children's experiences of school-based one-to-one art therapy	Grounded theory	14 children aged 7-11 years with various emotional / behavioural difficulties, (i.e.	Art therapy	No control group	2 primary schools in areas of high social deprivation	Any outcomes that children wish to express	QL: Children reported improvements in their self-expression, mood, confidence, communication,

Pupil Premium Funding by the Department for Education and the Education Funding Agency	To create a theory of change		anxiety, challenging behaviour, experience of bereavement, violence, abuse, trauma) 8 girls 6 boys			and ethnic diversity / UK	One year after the end of art therapy	understanding, resilience and learning. Reported change was often related to whether or not the aims of art therapy were clear to children prior to the sessions
Hilliard (2001) American Journal of Music Therapy Florida State University and Big Bend Hospice	To measure the effects of music therapy-based bereavement groups on mood and behaviour of grieving children	Quasi-randomised study	18 children aged 6-11 years who have experienced the death of a loved one within the past 2 years No reported percentage of girls/boys, or mean age	Music therapy	Waiting list	Three primary schools / Florida, USA	Depression Behaviour Mood Grief symptoms Pre-test, post-test	QNT: Children reported only small changes in depression. However, 25% of the children who were depressed pre-intervention, remained depressed post-intervention QNT: Parents reported reduced grief symptoms at home QNT: Teachers' responses were inconclusive
Kim (2017) Journal of Arts in Psychotherapy Korea Research Foundation Grant	To investigate the effects of community-based group music therapy in internalising behavioural problems for children exposed to	Cluster-RCT	26 children aged 7-12 years who have experienced maltreatment and poverty 11 girls 15 boys	Music therapy	Care as usual	Korean schools (Gongbubang) in Jeollabukdo, South Korea (Assisting schools for	Internalising behavioural problems Pre-test, post-test	QNT: Both groups showed some improvement for depressed and anxious behaviours while for withdrawn behaviours, the children in standard care got worse. Attention problems and

by the Korean Government	ongoing child maltreatment and poverty		Mean age: 8 years			children who experience poverty, abuse, domestic violence)		withdrawn behaviours were reduced in the music therapy group while they increased for children in standard care. All effect sizes were small.
Koshland, Wilson, Wittaker (2004) American Journal of Dance Therapy Marian Chace Foundation	To evaluate the effectiveness of a DMT-based violence prevention programme in children's self-control, aggressive incidents, and disruptive behaviours. To investigate whether DMT affects how children conduct themselves socially in a way that might decrease aggressive incidents.	Pilot quasi-randomised study	54 children aged 6-9 years without any specific difficulties Whole classes participated - Percentage of girls/boys not available	Dance movement therapy	Care as usual	1 school / USA	Pro-social skills Self-control Emotional regulation Problem-solving skills Pre-test, post-test	QNT: Children reported a statistically significant reduction in aggressive behaviours, which included seeing or experiencing someone doing something wrong or hurtful and someone throwing something. QNT: Children showed a decrease of feeling 'scared' in handling themselves in aggressive situations
Rousseau, Drapeau, Lacroix, Bagilishya, Heusch (2005) Journal of Child Psychology and Psychiatry	To prevent emotional and behavioural problems, and enhance the self-esteem in immigrant and refugee children	Controlled before and after	138 children aged 7-13 years who have experienced migration 57 girls 81 boys Mean age:	Art therapy	Care as usual	Two multi-ethnic primary schools in Montreal, Canada	Emotional behavioural difficulties Self-esteem Pre-test, post-test	QNT: Children reported a statistically significant decrease in internalising and externalising difficulties, and an increase in feelings of popularity and satisfaction.

Quebec Council of Social Research			9.8 years					Changes were observed in the intervention group of the integration classes, whereas the intervention group in the regular classes showed no change. Improvements on self-esteem was only notable in boys, but not in girls.

Table 6: Risk of bias for each included study

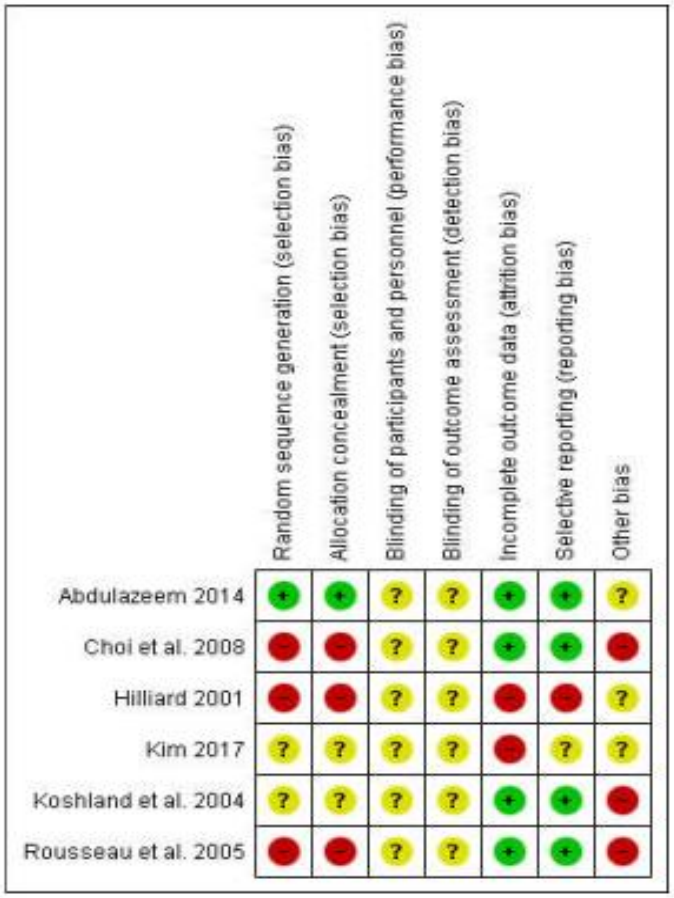

Table 7: Risk of bias summary

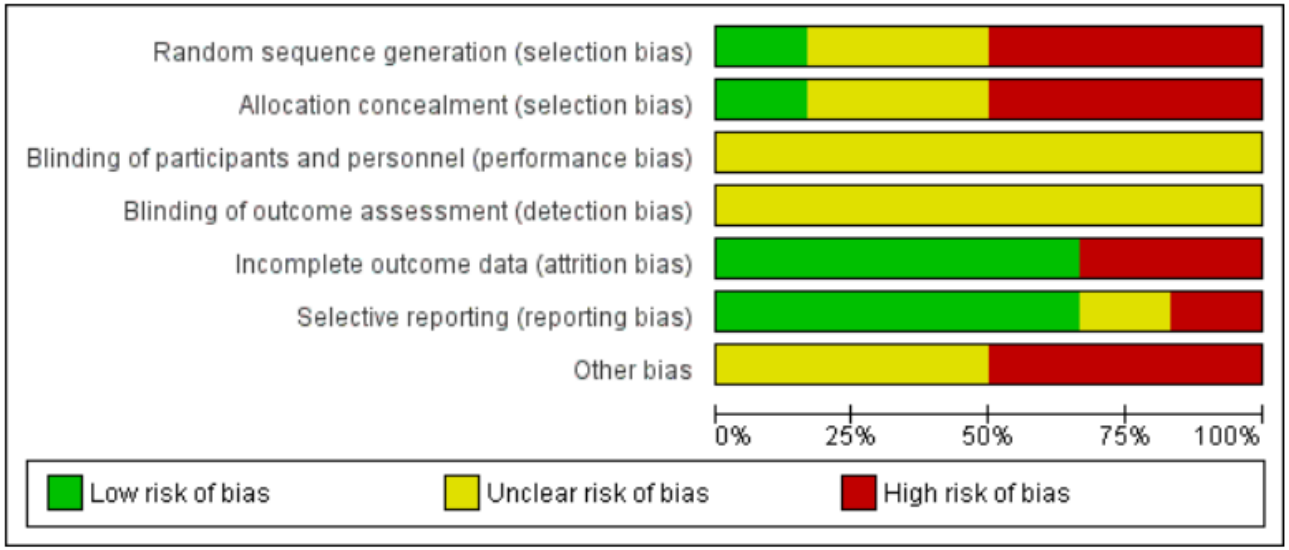

Table 8: Intervention details as profiled using the TiDieR reporting guidelines

Author (year)	**Abdulazeem (2014)**	**Choi et al. (2008)**	**Deboys et al. (2017)**	**Hilliard (2001)**
Rationale, theory, or goal	Rationale: Movement therapy may enable emotional and social changes in children. In this body–mind treatment, psychological and social changes could facilitate changes in physical and behavioural markers. Theory: The work of Marian Chace formed the foundation of the theoretical framework and principles of movement therapy. Goal: -improvement in perceptual-motor abilities and emotional well-being	Rationale: Music therapy may enhance life force through biophysiological responses (i.e. movement, relaxation, emotional catharsis), self-discovery, awareness, self-esteem and pleasure. Music therapy may also modulate the endocrinal responses, stabilise the nervous system, and affect the brain function. This leads to neural network activation, and activation of different regions of the brain. These effects can produce better physical and psychological function, reduce the stress, anxiety, and pain. Goal: -Reduction in aggression -Improvement in self-esteem	Rationale: Absence of evidence concerning children's perspectives and experiences of art therapy Theory: The epistemological position of this study is critical realism, or alternatively known as constructivism Goals: -To explore children's, parents', teachers', art therapists' perspectives of school-based art therapy -To create a theory of change	Rationale: Children often lack the verbal skills to express emotions and cope with grief. Therefore, symbolic and non-verbal means of expression are highly needed. Theory: Cognitive behavioural model to: a) modify children's behaviour, b) help them identify and express emotions of bereavement, c) intellectually understand grief, d) challenge their cognitive distortions while assisting with cognitive reframing and reshaping. This model would support children work through their bereavement in a safe and nurturing environment, while learning healthy means of dealing with the losses in life. Goals: -Reduction in grief symptoms and depression -Improvements in mood
Type of art therapy	Movement therapy	Music therapy	Art therapy	Music therapy
Materials	-Goodman's Strength and Difficulty questionnaire	-Korean version of the Child Behaviour Checklist	Arts-based interviews The interview schedule was developed following a	-Behaviour Rating Index for Children (rated by parents or legal guardians)

	-The Arabic version of the Purdue Perceptual-Motor Survey Children's artifacts -Open-ended questionnaires -Drawings	-Child Behaviour Checklist Aggression Problems Scale (completed by parents) -Child Aggression Assessment Inventory (completed by teachers) -Rosenberg Self-esteem Scale (completed by children)	literature review, discussions between the co-authors, CAMHS and education professionals. The questions were developed following Strauss and Corbin's methodology. (Available on request)	-Behaviour Rating Index for Children (rated by teachers) -Depression Self-Rating Scale (rated by children) -Bereavement Group Questionnaire (parents/guardians)
Procedures or strategies	Sessions designed to: a) explore the body's action in space, b) build trust, c) develop relationships, d) engage in group rhythm. Themes: Caring, Sharing, Relationships.	Techniques: singing, analysis of libretto, making musical instruments, playing instruments, song drawing, song writing. Four phases: a) rapport building, b) accepting and understanding emotions, c) catharsis through expression of inner anger, d) acceptance of change and self-support	Children were invited to create an image describing their experience of art therapy, during their interview. The rationale was to facilitate the expression of their experiences and recall of art therapy rather than to create visual data, so images were not studied, but their creation aided the interview process. No further information was reported regarding the procedures or strategies of the art therapy sessions	The Caring Tree program is designed for children at schools in need for bereavement counselling. The treatment protocol is based on the literature review and previous clinical experience. Techniques included: singing, song-writing, rap-writing, rhythmic improvisation, structured drumming, lyric analysis, and music listening.
WHO delivered the intervention	Researcher trained in movement therapy	Three music therapists	Two art therapists	Music therapists
HOW it was delivered	Group sessions	Group sessions	One-to-one sessions	Group sessions
WHERE it was delivered	Two primary schools in Saudi Arabia	One school and one after-school in South Korea	Two schools in the UK	Three schools in Florida
No. of sessions	24	30	20 (or more if needed)	8
Duration of sessions	45'-60'	60'	60'	60'
Intensity of sessions	Three times per week	Twice per week	Once per week	Once per week
Modifications	N/A	N/A	N/A	N/A
Adherence/ Fidelity assessment	ISRCTN registration No. 83899392	N/A	N/A	All techniques and activities reported in detail

Effectiveness assessment	Spearman's Correlation Coefficient Test	Mann-Whitney U-test	N/A	Mann-Whitney U-test
Reported estimation of the effects on the society	Movement therapy may foster children's physical and emotional integration and well-being	Music therapy may reduce children's aggression level and improve their self-esteem	Art therapy can lead to improvements in children's self-expression, mood, confidence, communication, understanding, resilience and learning	Music therapy could slightly decrease children's depression level and grief symptoms

Author (year)	**Kim (2017)**	**Koshland et al. (2004)**	**Rousseau et al. (2005)**
Rationale, theory, or goal	Goals: -Improvements in internalising behavioural problems, particularly: depression, anxiety, withdrawal, and attention difficulties	Rationale: DMT helps children learn and develop social interactions with others through a) modelling of effective interactions with others; b) using movement within a group experience, and c) providing opportunities for mastery of movement skills, leading to a sense of self-control Goals: -Improvements in self-control and disruptive behaviours -Decrease in aggressive incidents	Rationale: By allowing children to work through their loses, they might come to terms with trauma, and re-establish social ties broken by repression. Goals: -Prevention of emotional and behavioural problems -Improvement in self-esteem
Type of art therapy	Music therapy	Dance movement therapy	Art therapy
Materials	-Korean version of the Child Behaviour Checklist completed by: Teachers (Teacher's Report Form) Children (Youth Self Report Form) -Abridged Child Abuse Checklist -Child Abuse Screening Inventory	-Goldstein's 'Nonreader's Hassle Log' to record children's perceptions of: a) aggressive incidents they saw b) where they took place c) feelings of witnessing the incidents d) how children responded on a feeling level to the incidents	-Achenbach's Teacher's Report -Dominic computer-based questionnaire -Piers-Harris Self-Concept scale (Children's version)
Procedures or strategies	Semi-flexible treatment guideline based on the literature review, clinical experience and a pilot study. The main	Focus on group's dynamic relational problems and issues around self-control and emotional arousal, through building	The sessions were especially designed for immigrant and refugee children after 5 years of pilot projects, and aimed to: a) enable

	aim was to provide a safe space, time, and musical framework to allow children explore and express feelings, thoughts, and concerns. Techniques: structured and unstructured improvisation, free musical play, songs' discussion, song parody, and song writing	pro-social skills, modelling and practising methods of self-control. Skill building areas: self-control, emotional regulation, problem-solving, relationships	them to re-create a meaningful and coherent world around their pre-migration and migration experience; b) foster reciprocal respect of differences in identity and experience so as to promote bonding between children; c) to bridge the gap between home and school.
WHO delivered the intervention	Two music therapists	Dance movement therapist	An art therapist, a psychologist, and a teacher working together
HOW it was delivered	Group sessions	Group sessions	Group sessions
WHERE it was delivered	School music therapy centre	One school in the USA	Two schools in Canada
No. of sessions	12	12	12
Duration of sessions	60'	50'	120'
Intensity of sessions	Once per week	Once per week	Once per week
Modifications	None reported, but the study had been tested for three years to account for children's preferences	N/A	None reported, however, the intervention had been previously tested for over 5 years, where most modifications possibly took place
Adherence/ Fidelity assessment	ISRCTN registration No. 37583186	N/A	Separate publication of the protocol of the sessions
Effectiveness assessment	Power calculations, Chi-square / Fisher's exact test, t-test, ANCOVA, Greenhouse-Geisser adjustments	t-tests and probability values	Regression coefficient analysis t-tests
Reported estimation of the effects on the society	Music therapy resulted in small improvements in children's depression, anxiety, withdrawal, and attention problems	Dance movement therapy may contribute to the reduction of children's aggressive behaviours and feelings of fear in handling aggressive situations	Art therapy might lead to: -reduction in internalising and externalising difficulties -increase in feelings of popularity and satisfaction -improved self-esteem in boys, but no evidence of improvements for girls -Integration classes might be more in need of art therapy compared to regular classes